Claims

1. A demineralized bone matrix composition comprising:
demineralized bone matrix;
at least one non-glycercol stabilizing means;
wherein the composition retains at least 50% of its original osteoinductivity after one year at room temperature.

2. The composition of claim 1, wherein the composition does not include glycerol.

3. The composition of claim 1, wherein the demineralized bone matrix is in the form selected from the group consisting fibers, plates, particles, threads, and gels.

4. The composition of claim 1, wherein the non-glycerol stabilizing means is selected from the group consisting of deuterated water (D_2O), protease inhibitors, non-glycerol polyols, polysaccharides, and acids.

5. The composition of claim 1 further comprising water.

6. The composition of claim 1 further comprising hyaluronic acid.

7. The composition of claim 1, wherein the non-glycercol stabilizing means is a protease inhibitor or combination of protease inhibitors.

8. The composition of claim 7, wherein the protease inhibitor is selected from the group consisting of aprotinin, 4-(2-aminoethyl)benzenesulfonyl fluoride (AEBSF), amastatin-HCl, alpha1-antichymotrypsin, antithrombin III, alpha1-antitrypsin, 4-aminophenylmethane sulfonyl-fluoride (APMSF), arphamenine A, arphamenine B, E-64, bestatin, CA-074, CA-074-Me, calpain inhibitor I, calpain inhibitor II, cathepsin inhibitor, chymostatin, diisopropylfluorophosphate (DFP), dipeptidylpeptidase IV inhibitor, diprotin A, E-64c, E-64d, E-64, ebelactone A, ebelactone B, EGTA, elastatinal, foroxymithine, hirudin, leuhistin, leupeptin, alpha2-macroglobulin,

phenylmethylsulfonyl fluoride (PMSF), pepstatin A, phebestin, 1,10-phenanthroline, phosphoramidon, chymostatin, benzamidine HCl, antipain, epsilon-aminocaproic acid, N-ethylmaleimide, trypsin inhibitor, 1-chloro-3-tosylamido-7-amino-2-heptanone (TLCK), 1-chloro-3-tosylamido-4-phenyl-2-butanone (TPCK), trypsin inhibitor, sodium EDTA, and combinations thereof

9. The composition of claim 4, wherein the non-glycerol polyol is selected from the group consisting of polyvinyl alcohols, polyethylene glycols, erythritol, hydrogenated starch hydrolysates, isomalt, lactitol, maltitol, mannitol, sorbitol, and xylitol

10. The composition of claim 1, wherein the pH of the composition is below 7.

11. The composition of claim 1, wherein the pH of the composition is below 5.

12. The composition of claim 1, wherein the pH of the composition is below 4.

13. The composition of claim 1, wherein the pH of the composition is below 2.

14. The composition of claim 1, wherein the pH of the composition is between approximately 3 and 4.

15. The composition of claim 1, wherein the pH of the composition is between approximately 4 and 5.

16. The composition of claim 1, wherein the composition retains at least 75% of its original osteoinductivity after 1 year at room temperature.

17. The composition of claim 1, wherein the composition retains at least 90% of its original osteoinductivity after 1 year at room temperature.

18. The composition of claim 1, wherein the composition retains at least 75% of its original osteoinductivity after 2 years at room temperature.

19. The composition of claim 1, wherein the composition retains at least 90% of its original osteoinductivity after 2 years at room temperature.

20. The composition of claim 1 further comprising at least one exogenous osteoinductive or osteogenic agent.

21. A deminerlized bone composition comprising:

demineralized bone matrix;

a non-glycerol carrier; and

a stabilizing means,

wherein the composition retains at least 90% biological activity after one year.

22. The composition of claim 21, wherein the demineralized bone matrix is in the form selected from the group consisting fibers, plates, particles, threads, and gels.

23. The composition of claim 21, wherein the carrier is selected from the group consisting of hyaluronic acid, collagens, lipids, polymers, proteins, and water.

24. The composition of claim 21, wherein the carrier is selected from the group consisting of hyaluronic acid, collagens, lipids, polymers, and water.

25. The composition of claim 21, wherein the stabilizing means is selected from the group consisting of deuterated water (D_2O), protease inhibitors, non-glycerol polyols, sorbitol, and acids.

26. A demineralized bone matrix composition comprising:

a demineralized bone matrix;

glycerol; and

an agent selected from the group consisting of hyaluronic acid, starches, lipids, and water;

wherein the composition retains at least 90% of its original osteoinductivity after one year.

27. A demineralized bone matrix composition comprising:

a demineralized bone matrix;

an exogenous destabilizing agent; and

a stablizing means;

wherein the composition retains at least 90% of its original osteoinductivity after one year.

28. The composition of claim 27, wherein the exogenous destabilizing agent is a protease.

29. The composition of claim 27, wherein the exogenous destabilizing agent is a tissue comprising a protease.

30. A demineralized bone matrix composition comprising:

a demineralized bone matrix;

hyaluronic acid; and

glycerol;

wherein the composition retains at least 50% of its original osteoinductivity after 5 weeks at 40 °C.

31. A demineralized bone matrix composition comprising:

a demineralized bone matrix; and

hyaluronic acid;

wherein the pH of the composition is below 7; and

wherein the composition retains at least 50% of its original osteoinductivity after 5 weeks at 40 °C.

32. A kit comprising the demineralized bone matrix composition of claim 1 conveniently packaged for clinical use.

33. The kit of claim 32 wherein the demineralized bone matrix is packaged in sterile form.

34. The kit of claim 32 wherein the demineralized bone matrix is packaged in a syringe.